

REMARKS:

Applicant has carefully studied the nonfinal Examiner's Action and all references cited therein. The amendment appearing above and these explanatory remarks are believed to be fully responsive to the Action. Accordingly, this important patent application is now believed to be in condition for allowance.

Applicant responds to the outstanding Action by centered headings that correspond to the centered headings employed by the Office, to ensure full response on the merits to each finding of the Office.

Claim Rejections – 35 U.S.C. § 102

Applicant acknowledges the quotation of 35 U.S.C § 102(e).

Claims 1-24 stand rejected under 35 U.S.C § 102(e) as being anticipated by Terry et al. (U.S. Patent No. 6,614,861). More specifically, the Office contends that claims 1-24 are anticipated by Terry et al. because Terry discloses a method and an apparatus for higher dimensional modulation comprising the following claimed limitations:

In claims 1-6 and 10-25, "a symmetrical spherical quadrature amplitude modulation constellation in a multidimensional complex plane", citing the Abstract and col. 3, line 48 through col. 4, line 35 and "a mapper for mapping the binary stream of bits onto the symmetric spherical QAM constellation" at Fig. 3, element 306.

In claims 7-9, "receiving a binary data stream" and "segmenting the binary data stream", at col. 3, lines 38-50.

Applicant respectfully traverses the finding of the Office.

Independent claims 1, 7 and 13 have been amended to more clearly define that which the Applicant regards as the invention. As described in the specification at paragraph [0025], as originally filed, due to the geometry of the symmetric spherical constellation of the present

invention, the symbol points of the constellation exhibit eight fold symmetry with point group type $4mm$.

Terry does not describe the distribution of the symbol points as disclosed and claimed by the present invention. Additionally, Terry states at col. 3, lines 65 that there are an infinite number of ways to arrange M points within an N-dimensional space and in a preferred embodiment the placement is such that the symbols are on the surface of the N-dimensional sphere such that each symbol is transmitted with the same average transmit power. Terry does not describe the symmetric spherical constellation in accordance with the present invention comprising a first amplitude ring having four symbol points, and at least one shell having symbol points placed within the boundary of a sphere such that they exhibit eighth fold symmetry with point group type $4mm$. The placement of the symbol points to form a symmetric spherical constellation as claimed by the present invention, is not described by Terry et al. As such, Terry et al. does not anticipate the present invention.

Claims 2-6 are dependent upon claim 1, and are therefore allowable as a matter of law.

Claims 8 and 23 are dependent upon claim 7, and are therefore allowable as a matter of law.

The Office contends that claims 2-6 and 8-24 are anticipated by Terry et al. The showing of anticipation requires in a single prior art reference disclosure of each and every element of the claimed invention, as arranged in the claim. However, the Office has failed to address each and every element of claims 2-6, and 8-24. As such, Applicant believes that this Office Action is incomplete and does not provide any basis for the rejection of these claims. Therefore, the Office has not established a prima facie case of anticipation of claims 2-6 and 8-24 and these claims are believed to be in condition for allowance.

Claim 25 has been canceled without traverse

By cancellation or amendment of these claims, applicants only wish to advance prosecution of the present application. Applicants reserve the right to prosecute one or more subject matter in the original claims in one or more continuation applications and that equivalence to these claims have not been relinquished by these amendments.

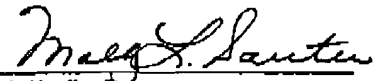
If the Office is not fully persuaded as to the merits of Applicant's position, or if an Examiner's Amendment would place the pending claims in condition for allowance, a telephone call to the undersigned at (727) 507-8558 is requested.

Very respectfully,

SMITH & HOPEN

Dated: November 22, 2004

By:


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CERTIFICATE OF FACSIMILE TRANSMISSION
(37 C.F.R. 1.8(a))

I HEREBY CERTIFY that this Amendment C is being transmitted by facsimile to the United States Patent and Trademark Office, Art Unit 2634, Attn.: Amanda T. Le, (703) 872-9314 on November 22, 2004.

Dated: November 22, 2004


Deborah Preza